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# EUROPEAN PATENT APPLICATION

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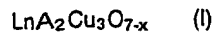
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⑤ Thin film of single crystalline  $\text{LnA}_2\text{Cu}_3\text{O}_{7-x}$  having three-layered perovskite structure and process for producing the same.

⑤ A thin film consisting of a single crystalline oxide of the formula:



wherein Ln is at least one of the rare earth elements Y, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm and Yb and A is at least one of the alkaline earth metals Ba, Sr and Ca which has a three-layered perovskite structure in which

(1) the (001) plane,

(2) the (110) plane or

(3) the (103) plane

of the crystal is parallel with the film surface is provided.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	APPLIED PHYSICS LETTERS. vol. 51, no. 11, 14 September 1987, NEW YORK US pages 852 - 854; B. OH et al: "Critical current densities and transport in superconducting YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-d</sub> films made by electron beam coevaporation" * page 852 *	1, 2, 5, 6	H01L39/12 H01L39/24 C30B25/02 C30B29/16
Y	* page 852 *	3, 10	
Y	JAPANESE JOURNAL OF APPLIED PHYSICS. letters vol. 26, no. 5, May 1987, TOKYO JP pages 876 - 878; M. ONODA et al: "Crystal structures of YBa <sub>2</sub> Cu <sub>3</sub> O <sub>x</sub> and LnBa <sub>2</sub> Cu <sub>3</sub> O <sub>x</sub> (Ln=Ho and Dy)" * abstract *	3	
X	JAPANESE JOURNAL OF APPLIED PHYSICS. letters vol. 26, no. 7, July 1987, TOKYO JP pages 1248 - 1250; Y. ENOMOTO et al: "Largely anisotropic superconducting critical current in epitaxially grown Ba <sub>2</sub> YCu <sub>3</sub> O <sub>7-y</sub> thin film" * pages 1248 - 1249 *	1, 2, 5	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
Y	* pages 1248 - 1249 *	10	H01L
P, X	JAPANESE JOURNAL OF APPLIED PHYSICS. letters vol. 27, no. 1, January 1988, TOKYO JP pages 91 - 93; T. TERASHIMA et al: "Single-crystal YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-x</sub> thin films by activated reactive evaporation" * pages 91 - 92 *	1, 2, 5-9	
P, X	APPLIED PHYSICS LETTERS. vol. 51, no. 26, 28 December 1987, NEW YORK US pages 2263 - 2265; H. ADACHI et al: "Low-temperature process for the preparation of high T <sub>c</sub> superconducting thin films" * the whole document *	1, 4, 5	
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 20 AUGUST 1990	Examiner ROUSSEL A.T.
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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DOCUMENTS CONSIDERED TO BE RELEVANT			Page 2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
P, X	JAPANESE JOURNAL OF APPLIED PHYSICS, letters vol. 26, no. 11, November 1987, TOKYO JP pages 1921 - 1924; M. SUZUKI et al: "Anisotropic properties of superconducting (La <sub>1-x</sub> Sr <sub>x</sub> ) <sub>2</sub> CuO <sub>4</sub> single-crystal thin films"	12	
P, A	* page 1921 * * page 1921 * -----	12	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
BERLIN	20 AUGUST 1990	ROUSSEL A. T.	
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document			